

Use of the shower aspersion combined with the swiss ball as a method of pain relief in the active labor stage

Uso do banho de aspensão associado à bola suíça como método de alívio da dor na fase ativa do trabalho de parto

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DOI 10.5935/2595-0118.20180032

ABSTRACT

BACKGROUND AND OBJECTIVES: The pain is an inherent phenomenon in labor and may interfere directly with its physiology. The objective of this study was to correlate the effectiveness of the association of the shower aspersion and the swiss ball as a method of pain relief in active labor stage.

CONTENTS: This is an integrative review. The sample was taken from the LILACS, Scielo, BDENF and Medline databases. Fourteen articles were used, published between 2010 and 2016, in the Portuguese and English language. The results indicate a significant reduction of the pain score when associated with both therapies, in addition to acting effectively in the labor progression.

CONCLUSION: The present review allowed the perception that the association of shower aspersion and swiss ball therapies is more effective than its isolated use, enhancing pain relief when applied in the active phase of labor, improving its progression, reducing the duration and stimulating natural childbirth.

Keywords: Baths, Complementary therapies, Hydrotherapy, Labor pain.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A dor é um fenômeno inerente ao trabalho de parto, podendo interferir diretamente em sua fisiologia, o presente estudo teve por objetivo correlacionar a eficácia da associação do banho de aspensão e da bola suíça como formas de alívio da dor na fase ativa do trabalho de parto.

CONTEÚDO: Para confecção da pesquisa foi utilizada a revisão integrativa, sendo o levantamento da amostra na literatura realizado por meio das bases de dados: LILACS, Scielo, BDENF e Medline. Foram selecionados 14 artigos nos idiomas português

e inglês do período de 2010 a 2016. Os resultados apontam redução significativa do escore de dor quando associadas ambas terapêuticas, além de atuar de modo efetivo na progressão do trabalho de parto.

CONCLUSÃO: O presente estudo possibilitou a percepção de que a associação das terapêuticas do banho de aspensão e da bola suíça mostrou-se mais eficaz que seu uso isolado, potencializando o alívio da dor quando aplicadas na fase ativa do trabalho de parto, melhorando a progressão do mesmo, diminuindo sua duração e estimulando o parto normal.

Descritores: Banhos, Dor do parto, Hidroterapia, Terapias complementares.

INTRODUCTION

Pain during the labor process is the main phenomenon felt by women in labor, and it can be related the several factors, such as biological, financial, cultural and emotional. It is necessary to adopt humanizing measures to care for the parturient holistically, improving the evolution of childbirth and the reduction of adverse events allowing the childbirth process to be a unique event¹.

One of the most important tasks of the professionals who care for the woman during the pregnancy-puerperal process is to provide quality assistance, where the childbirth process is valued as physiological and performed with the adequate use of the technology, as the use of non-pharmacological methods to relieve the pain².

The non-pharmacological methods for pain relief are techniques that even though require a specific knowledge for its use, they do not require complex equipment for its application³.

Such methods provide greater autonomy to the woman, with better pain management, decreasing the pain felt as result of the uterine contractions and allowing the adoption of different positions².

Among the recommended non-pharmacological practices for pain relief is the use of shower and the swiss ball. These techniques can be applied isolated or combined⁴.

The warm water of the shower applied on the back of the pregnant woman considerably reduces the pain sensation, alleviating the back pain considered one of main pain reported by parturients, while the use of the swiss ball stimulates the vertical position, improves the tension allowing the relaxation of the pelvic floor. Both the techniques are applied in the first stage of the labor process⁵.

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Submitted in September 18, 2017.

Accepted for publication in March 05, 2018.

Conflict of interests: none – Sponsoring sources: none.

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In this context, we tried to identify the benefits in using non-pharmacological methods for pain relief, aiming at the reduction of interventionist practices and therefore promoting humanistic assistance to childbirth.

It is important to identify the effectiveness of the shower associated with the swiss ball, due to the increasing need to use non-pharmacological methods that provide greater relief of pain in the active phase of childbirth. We believe that the present study will contribute to a better knowledge of the proposed themes and the benefits of their use as non-pharmacological methods for the relief of pain.

The objective of this study was to correlate the efficacy of the association of the shower with the swiss ball as a way to relieve pain in the active phase of childbirth.

CONTENTS

To elaborate this study, the following stages have been considered: 1) selection of the theme and definition of the guiding question, 2) search of the sample in the literature and establishment of the inclusion and exclusion criteria, 3) data classification, 4) analysis of the selected contents, 5) interpretation of the collected data, and 6) synthesis and presentation of the results⁶.

After selecting the theme of the use of the shower in association with the swiss ball, the following guiding question was defined: “the association of the shower with the swiss ball increases the relief of pain during the active phase of childbirth”? The survey was conducted using the following database: The Caribbean and Latin American literature in Health Sciences (LILACS), Scientific Electronic Library Online (SciELO), Database on Nursing (BDENF) and Medical Literature Analysis and Retrieval System Online (Medline). The articles selected were published from 2010 to 2016, using the following keywords: “Hydrotherapy,” “Shower,” “Childbirth pain” and “Complementary therapies,” all registered in Health Sciences keywords (DeCS).

The criteria used to include the studies were texts in the Portuguese and English languages, published in full in the last seven years, addressing the topics: shower, swiss ball, and childbirth pain, being excluded all the articles that did not meet one of the criteria described.

The initial search resulted in the selection of 26 articles. Then, the instrument of data collection was elaborated including the database where the article has been selected, the title, the language, the year of publication, the subjects of the research, the type of study, place, theme, and the pain assessment method (in the pertinent studies). After the analysis of the data found, 14 articles that corroborated the themes under discussion were selected.

The data were presented in a descriptive approach that allows the analysis, notation, and characterization of the sample data⁷, and divided into thematic categories to present the results obtained. For the elaboration of the study, all the articles used in the discussion come from the SciELO and Medline database. The articles of the LILACS database were used to support the other items of the review. No article of the BDENF database was selected.

Regarding the methodological approach, the studies included adopted the quantitative approach that uses numerical data and statistical resources and techniques for the analysis⁷.

Table 1. Articles included

| Authors | Types of studies |
|----------------------------------|---|
| Santana et al. ⁸ | Controlled clinical trial, of the therapeutic intervention type |
| Pereira and Ribeiro ⁹ | Literature review |
| Benfield et al. ¹⁰ | Quantitative study |
| Reis et al. ¹¹ | Quantitative and retrospective study |
| Gallo et al. ¹² | Literature review |
| Lee et al. ¹³ | Randomized and controlled study |
| Silva et al. ¹⁴ | Descriptive study with a quantitative approach |
| Pereira et al. ¹⁵ | Quantitative approach, exploratory, descriptive and retrospective study |
| Lobo et al. ¹⁶ | Descriptive study with retrospective data collection |
| Gallo et al. ¹⁷ | Randomized and controlled study |
| Araújo et al. ¹⁸ | Descriptive, experimental study with longitudinal characteristic and quantitative approach. |
| Taavoni et al. ¹⁹ | Randomized and controlled study |
| Barbieri et al. ²⁰ | Experimental clinical trial or randomized and blind intervention |
| Henrique et al. ²¹ | Randomized and controlled clinical trial |

DISCUSSION

After the analysis of the studies in search for a response to the proposed problem, three thematic categories were defined to guide the discussion: the use of shower; the use of the swiss ball, and the association of the shower and the swiss ball.

The following discussion was divided into three thematic categories to present better the problem proposed. Each thematic section will include the articles selected for its elaboration.

Use of the shower

For the elaboration of this category, 6 articles were selected⁸⁻¹³. The pain and anxiety experienced by the parturient during childbirth can cause effects considered harmful, as the secretion of catecholamines and cortisol⁸.

Such hormones are released to respond to the stress, leading to the activation of two neurohumoral systems, the hypothalamic-pituitary-adrenal axis responsible for the release of cortisol, and the sympathoadrenal medullary system responsible for the release of catecholamines⁹.

The epinephrine and norepinephrine catecholamines raise during labor without analgesia, causing an increase of the cardiac output and the peripheral vascular resistance, also raising the blood pressure, in addition to the reduction of the uterine blood flow, compromising, in turn, the fetal perfusion⁸.

The hydrotherapy, whether in the form of immersion or shower, is widely used around the world to promote comfort, to reduce anxiety and consequently the pain in childbirth. A study conducted with 11 women in labor, using immersion

in water at 37°C for one hour with the purpose to evaluate the mother's pain and anxiety through hormone doses in the plasma evidenced that the use of the hydrotherapy reduces the levels of oxytocin and vasopressin, decreasing the anxiety and consequently, the pain¹⁰.

A retrospective quantitative study, conducted in 2015, showed that among the practices to relieve pain, the shower is one of the most used. Using nonpharmacological methods makes it possible to replace the pharmacological analgesia and, consequently, reduce interventionist approaches¹¹.

The shower promotes the reduction of the catecholamines secretion, reducing the anxiety and increasing the mother's satisfaction. The warm water provides a muscle relaxation through the peripheral vasodilation, resulting in the redistribution of the blood flow¹².

The muscle relaxation also increases the elasticity of the vaginal opening. This method is free from adverse effects, of low cost and easy to apply⁸.

To enjoy the benefits of this therapy, the water temperature must be taken in consideration and needs to be between 37 and 38°C, and the parturient must remain in the bath, for at least 20 minutes, directing the water to the painful regions that, in general, are lumbar or the lower abdomen¹².

In a randomized controlled study conducted in the city of Taipei in Taiwan they, evaluated the shower therapy with warm water at 37°C, directing the water spray all over the body or to the lumbar region, in the experimental group. The control group received the standard care. The visual analog scale (VAS) was used to assess pain. They found that after the application of the therapy in the experimental group, there was a significant reduction in pain scores in the active phase of childbirth when compared with the control group¹³.

A controlled clinical trial of the therapeutic intervention type evaluated 34 women in labor, with shower application for 30 minutes when the cervical dilation was 4-5cm, keeping the water temperature between 37 and 39°C. The labor was of habitual risk, and one of the inclusion criteria was not to use drugs during the period of the study. The pain was assessed according to the VAS, which is a graduated scale of 100 mm, divided into different levels of pain. Pain intensity was assessed before and after applying the therapy. The study concluded that the shower had a positive and significant result, reducing the level of pain from 80mm pre-therapy to 55mm post-shower intervention⁸.

Use of the swiss ball

For the elaboration of this category, 6 articles were selected¹⁴⁻¹⁹.

The adoption of vertical positions associated to movement can minimize the pain felt by the parturient, increasing the effectiveness of the uterine contractions, improving the mother-fetus blood circulation, facilitating the delivery descent, and minimizing the occurrence of the perineal trauma¹⁴.

The swiss ball is one of the methods that stimulate the mother's movement during childbirth, also providing autonomy in the choice of the positions, allowing the swinging of pelvis and squatting since it is used in the sitting position^{14,15}.

The ball is an inflatable rubber object, usually used in physiotherapy to correct the posture and treat neurologic pathologies. It was first used in 1963, when Aquiline Corsani, an Italian plastic manufacturer developed it. It received the name of swiss ball in 1989 when swiss physiotherapists realized its benefits and took the ball to the U.S, also receiving the name of the ball of birth, when some years ago it started to be used in labor^{16,17}.

There are several benefits in stimulating the mother's mobility during the childbirth process, as the reduction of the use of drugs, promoting dilation, and reducing labor time, and also providing higher resistance to pain. The swiss ball is considered a recreational object since it mobilizes the parturient's attention leading to relaxation and comfort¹⁷.

The practice of exercises using the swiss ball allows direct action on the pelvic muscles, mainly on the levator ani, pubococcygeus, and the pelvic fascia. The pelvis movement during the therapy relaxes and stretches the muscles¹⁴.

During childbirth, the adoption of the supine position compresses the vena cava and the aorta, leading to the hypotension of the mother and consequent fetal suffering. In the supine position, the fetus is parallel to the mother's back, making uterus contractions difficult, whereas, in the vertical position, the gravity acts on the mother's uterus pushing it forward and improving the mother-fetus positioning¹⁴.

In addition to stimulating vertical positions during childbirth, the swiss ball can also be associated with other therapies, as, for example, the shower¹⁷.

A study conducted in the Centro de Ensino Unificado of the city of Teresina evaluated the Pilates technique that uses the ball. The study showed improvements in the pelvic circulation, stretching structures, and relief of muscle tensions, improving pain after the practice of the exercises. The researchers think that such phenomenon occurred as a result of the so-called "exercise-induced analgesia" due to adaptative pain control mechanisms that release neurotransmitters, noradrenaline, serotonin, dopamine, and enkephalins. It could also have occurred due to the endorphins influence that promotes the reduction of the anxiety sensation anxiety¹⁸.

A controlled and randomized study with 60 primiparous women with the purpose to evaluate the use of the swiss ball as pain relief showed a significant reduction in the pain score in the group that received the therapy. The pain intensity was assessed with the VAS. The study showed that even though the use of the ball did not directly interfere with the uterine contractions, or in the duration of the labor, it was effective as a method of relief of pain in the active phase¹⁹.

A randomized and controlled clinical trial conducted at MATER (Center of Reference of Woman's Health of Ribeirão Preto), evaluated 40 women in labor who did pelvic mobility exercises with the ball for 30 minutes, being the pregnancy of habitual risk and the cervical dilation of 4-5cm. One of the inclusion criteria was not to use pharmacological methods. The pain was assessed by the numeric categorical scale (NCS), observing a significant reduction in pain, from 7.9 pre-therapy to 5.5 after the use of the ball¹⁷.

Association of the shower and the swiss ball

For the elaboration of this category, 2 articles were selected^{20,21}. The mother's cervical dilation can be used as an indicator of pain intensity, guiding the use of relief techniques. The pain is considered mild when the dilation is up to 5cm, progressing from moderate to intense as the dilation evolves. The pain felt for the woman in labor in the dilation period is related to the stimuli transmitted by the fibers of the pelvic structures, associated to the vagina, the cervix uteri and perineal muscles. The pain is less intense at the beginning of childbirth, starting at T10 and irradiating up to S4 in the expulsive stage of labor when its intensity is increased²⁰.

During the shower, the action of the local heat promotes the reallocation of the blood flow in the muscles, providing a sensation of relaxation and well-being. Now, the swiss ball works on the perineal region, reducing the pelvic discomfort and the need for analgesia. The association of warm shower and the swiss ball during the first period of labor shows greater effectiveness in promoting comfort and consequent pain relief²¹.

An experimental, blind and randomized clinical trial was conducted in an intra-hospital normal labor center of the Unified Health System (SUS), in the city of São Paulo. The study evaluated 15 women in labor who received the therapeutical application of the shower with warm water and the perineal exercise with the swiss ball, isolated and combined, using the VAS to assess pain. The shower therapy was applied with the water at 37°C. The parturient could be seated or standing and the water was directed to the lumbosacral region for 30 minutes. For the swiss ball therapy, a 65cm ball was used with the parturient seated on it with legs flexed in a 90° angle, performing rotation and propulsion movements for 30 minutes. The study showed that when used simultaneously, the shower and the ball therapies significantly reduced the pain score when compared with the isolated use²⁰.

In a randomized and controlled clinical trial conducted in two public hospitals of the city of São Paulo, 128 women in labor were evaluated when using the warm shower and perineal exercises with the swiss ball therapy, aiming at to evaluate their influence in childbirth progression. For this, a statistical analysis was performed using the SPSS (Statistical Package for the Social Sciences), comparing the frequency of uterine contractions, fetal heart rate, mother's cervix dilation and fetal descent through the mother's pelvis, evaluating the isolate and combined interventions. For the application of the warm shower, a water spray at 37°C was applied on the lumbosacral region for 30 minutes, with the mother standing or seated. The perineal exercises were performed with the swiss ball with the mother sitting on it with her legs flexed, separate knees and feet totally on the floor, making rotation and propulsion movements with the pelvis for 30 minutes. The cervical dilation of the participants was 5 cm since the use of the shower therapy with less dilation is associated with a greater need of pharmacological methods for analgesia. The study showed that the association

of the methods effectively changed the labor progression, reducing the duration from 255.05min. when the shower was applied isolated, and from 288.41min. when the ball was used isolated, to 216.85min. with the combined interventions, also leading to a higher incidence of normal labor when compared to the isolated use of therapies²¹.

CONCLUSION

The present study provided the perception that the association of the shower and swiss ball therapies showed to be more effective than its isolated use, improving pain relief when applied in the active phase of childbirth, improving its progression, reducing its duration and stimulating the normal labor. It is important to highlight that there are still some gaps in this issue due to the small number of existing scientific studies regarding this subject matter.

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